

Fig. 1

i,

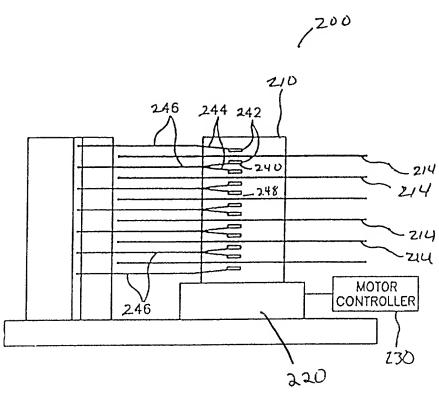
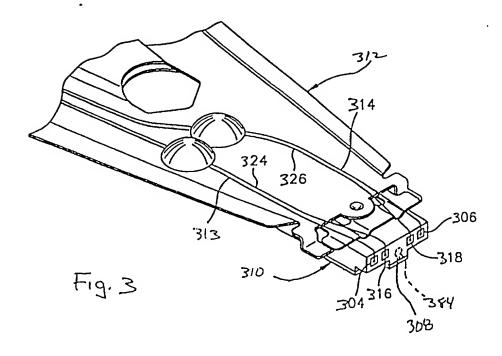


Fig. 2



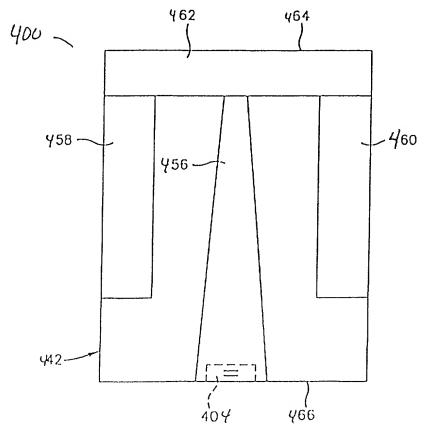
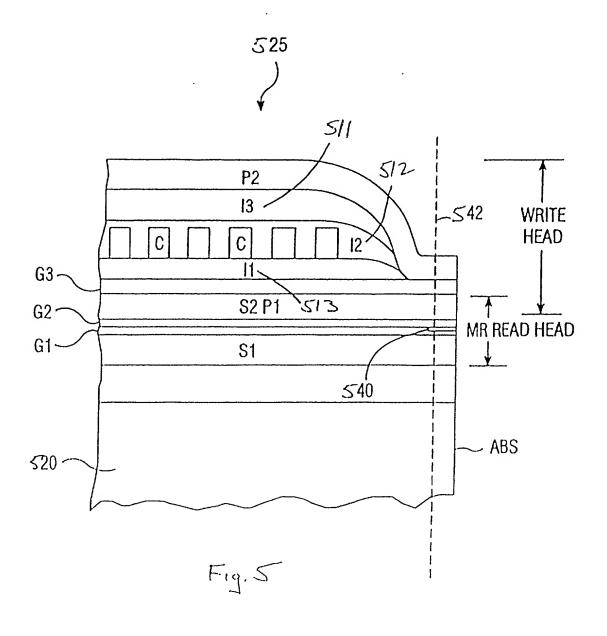


Fig. 4



600

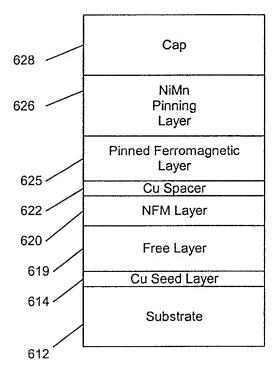


Fig. 6

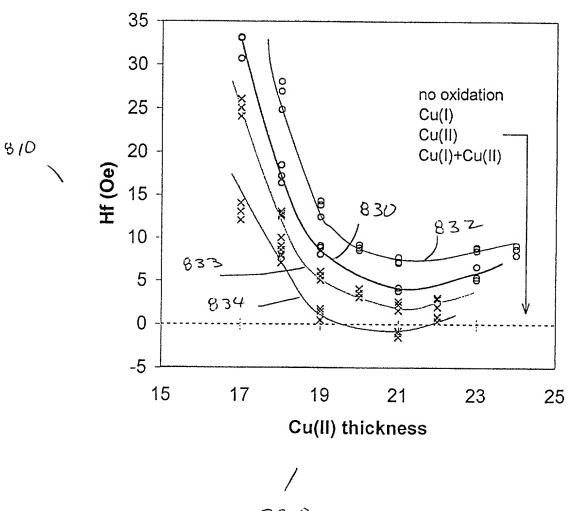
	As-deposite	As-deposited free layer	Annealed free lay	Annealed free layer at 250°, 5 hrs
	λ_{i}	λ_b	بخ	λ _b
Without	$6 \times 10^{-5} \text{ Å}$	-3.2 x 10 ⁻⁶ Å	8 x 10 ⁻⁵ Å	-0.9 x 10 ⁻⁶ Å
oxidation				
With Cu seed	$4 \times 10^{-5} \text{ Å}$	-3.1 x 10 ⁻⁶ Å	4 x 10 ⁻⁵ Å	-1.5 x 10 ⁻⁵ Å
and spacer				
oxidation				

Fig. 7

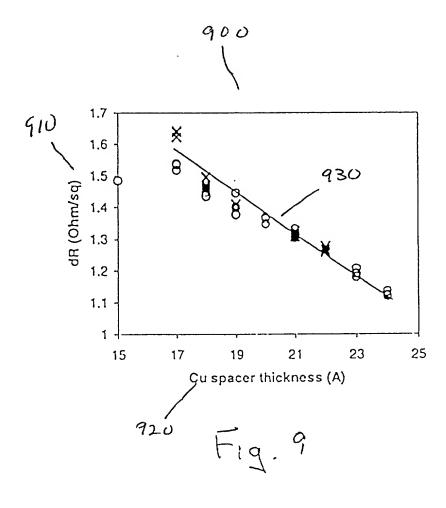
. . .

800

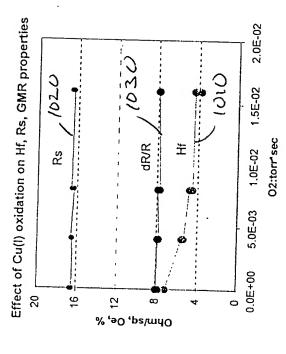
Hf vs Cu spacer thickness



820



(000)



oxidation

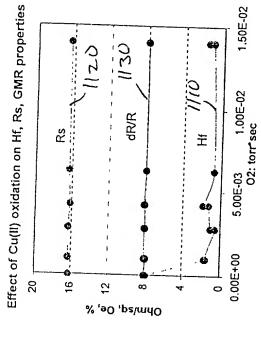
Cu(II) Free layer

T1.9.(0)



1 1 % r





oxidation

Cu(II) Free layer

Cu(E)

Pinned layer

1.6.1

4 2 2 F

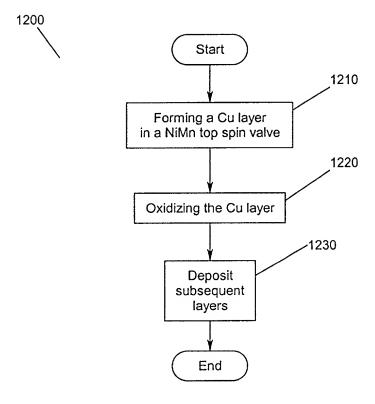


Fig. 12